

NEW VIEWS

23

OF THE

CAUSE, PREVENTION, AND CURE

OF

YELLOW FEVER,

AND OTHER

DISEASES PRODUCED BY MIASMA AND MEPHITIC VAPORS.

PRESENTED FOR THE

SAFETY OF THE ARMY OF OCCUPATION

IN THE

SOUTHERN STATES.

BY J. W. REDFIELD, M.D.,

A REFUGEE FROM THE SOUTH.

New-York:

JOHN A. GRAY, PRINTER, STEREOTYPYPER, AND BINDER,

FIRE-PROOF BUILDINGS,

CORNER OF FRANKFORT AND JACOB STREETS.

1863.

N. B.—Persons desiring copies of this pamphlet will please address,

J. W. REDFIELD, M.D.,

Care L. D. & C. F. MANSFIELD,

Nyack, N. Y.

P R E F A C E.

THE writer has had experience in Yellow Fever, and other low forms of fever prevalent in the Southern States, once during the summer of 1846, and again during a residence of five years—the last of which was the year 1862—experience in his own person, in the suffering of those diseases, and in the treatment of them in others. From this experience, and a knowledge of Anatomy and Physiology, which every physician possesses, he has deduced a theory, plain, simple, and demonstrable to the most ordinary understanding, provided it be furnished with the facts from which the theory has been deduced, and to which it is of practical application.

Every body knows that fevers arise from malaria, or some sort of infection, and consequent inflammatory or eruptive disease, of which fever is an inseparable attendant. Every body knows, too, or ought to know, that malaria is the result of the decay, predominating over the cultivation and growth, of vegetable and animal substances, under the influence of heat and moisture—precisely what occurs in a very remarkable degree in the Gulf States, and always will occur under an imperfect system of cultivation, and among an enslaved and filthy population. Of course this must be greatly aggravated in camp and city life, in such localities, unless extraordinary attention is paid to cleanliness and the prevention of effete exhalations.

How malaria acts in producing fevers it is important to know ; but it is sufficient for our present purpose to ascertain what conditions of body are able to resist and overcome its influences, and what succumb and give way to it ; also what organs are specially attacked and weakened by it, and by what means they can be strengthened and fortified against its action, so as to be able, by their health and vigor, to throw it off, and with it the disease which it has induced.

This, under its appropriate heads, will form the subject of the following pages.

NEW VIEWS.

CHAPTER I.

The Conditions of Body favorable to an Attack of Yellow, Typhus, and other Low Forms of Fever; and the Conditions favorable to Resisting and Throwing off these Diseases.

No man should go from a northern climate to our South-Atlantic or Gulf-coast, and no man should be sent there under the military authority, without his first knowing that he has a constitution fitted to withstand the diseases incident to such a climate and locality. It is not mere *strength*, but a certain *peculiarity* of constitution, that constitutes this adaptation. The organization instrumental and indicative of destructiveness, fits a man or an animal to inhabit marshes, and to breathe miasma and pestilent vapors, as the elements natural to him, suited to his healthy and normal condition. It is a significant fact that the natives of New-Orleans, Mobile, Galveston, Key West, and the Gulf-coast generally, like the alligators, serpents, wild cats and blood-thirsty mosquitoes of their adjacent bayous, swamps, and marshy woods, are naturally destructive, and possess the organization which in vertebrate animals is indicative of such a disposition. This, as every body knows, or may know, by comparing savage with mild animals, is large and prominent canine teeth, large and strong diaphragm, a large and active liver, and a large gall-bladder, full to overflowing with that bitterness which is so like hatred. An overflow of bile makes a man boil over with rage, and boiling over with rage makes him overflow with bile. The cause and the effect mutually react upon each other. That which excites a man to "dip his pen in gall," and to deal in "biting sarcasm," incites him to challenge his enemy to a duel, and to "seek the life entire;" as is more frequently the case in the South than in the North. Whether malignity, that carries its hostility to the "bitter end," content

with nothing short of taking the life of its enemy, be connected with the organization that distinguishes destructive animals, or not, it is certain that the character and the conformation are in exact proportion to each other, and that they constitute some of the conditions necessary to the resistance and overcoming of febrile causes. All savage men and animals—of the latter, the canine and feline especially—are remarkable for diaphragmatic and abdominal breathing, and for the size and function of the liver; and it is a fact that they breathe miasmatic and pestilent atmospheres with impunity, while the mild and gentle and vegetable-eating in the same localities are liable to die of diseases induced by these causes.

It is recorded of Robespierre, that while employed in his daily and wholesale massacres, (in which, of course, he exercised enormous destructiveness to an extreme degree,) he was subject to an excessive flow of bile, which he endeavored to neutralize and hold in check by constant draughts of lemon-juice. Asthmatics breathe almost altogether by the diaphragm and abdominal muscles, scarcely at all by the intercostals; and we have observed that the secretion of bile is generally too abundant in them, and that malaria does not affect them—that even in a yellow-fever climate, while others all around them are falling victims to the disease, they are exempt. That these very healthy and long-lived invalids (if we may be allowed the expression) have large destructiveness, though often directed by benevolence and good nature, observation has furnished us with abundant proof.

Of course, if one of the conditions favorable to the resistance and overcoming of febrile causes be such as has been named, the reverse is a condition favorable to the *action* of such causes. A person of a mild, timid, inoffensive character, not from benevolence, politeness, or self-discipline, (though he may possess these,) but from natural lack of destructiveness and love of overcoming, has a thin, weak diaphragm, and a small, inefficient liver and biliary secretion, and is almost sure to fall a victim to yellow fever, or any other low form of fever, when exposed to it. This is sure to be the case if the exposure be great, and he be a vegetable-eater, and take acids instead of bitters for his beverage. The same is true of the vegetable-eating animals, only the most destructive of which, as cows with long horns, and inclined to use them, and smashing horses, that lash their sides with their tails, like lions, have diaphragmatic breathing and bil-

iliary secretion sufficient to insure their growing up and living healthfully in a malarious region.

But combativeness, or a pugilistic disposition, must not be mistaken for destructiveness, in our judgment as to who is capable of resisting the influence of atmospheric poisons. The sheep, for example, is very combative, is inclined to give and take blows, but is not at all destructive, and has but a weak diaphragm, small liver, and deficient biliary secretion. And as sheep are easily killed by impure air, taking the rot, and dying of it, so are people of a combative, but non-destructive disposition. It would be a great mistake, therefore, to send to a malarious climate a brave soldier who seeks only to *beat* an implacable enemy, and not utterly to *destroy* and *exterminate* him, if, indeed, he prove himself implacable. It was such a mistake in the United States Government to send Dr. Kane to Africa, where he barely escaped death from the coast-fever, and to Mexico, where his lack of destructiveness, shown in his mercy to desperadoes, admitted the yellow fever which nearly terminated his existence. It was such a mistake also that sent the mild and gentle, but brave and patriotic Professor Mitchel to Port Royal, and terminated his life by a foe which it required a lower nature to contend with.

Another condition necessary to the resistance and throwing off of miasma and other morbid matters, and the diseases they engender—a condition without which the former is insufficient—is the organization instrumental and indicative of the power to endure or bear up against, and to repel or throw off. This condition of an anti-febrile constitution is a long and strong spinal marrow, a resisting, firm, persistent, unconquerable brain, and nervous energy. This is what repels, throws off, and makes head against the causes of suppression, retention and absorption of morbid matters, congestion, coldness, trembling, inflammation, fever, prostration, incoherence—all the symptoms of what is sometimes and very properly called “nervous fever,” synonymously with “putrid fever,” “congestive fever,” “typhus fever,” and so on. The courage of resistance, a bold front to meet danger and difficulty, helps to sustain the nervous system, to resupply it with the elements necessary to its growth, and with the nervous fluid, rendering it lithe and vigorous. The timidity of lack-resistance, on the contrary, a shrinking sensitiveness, an inability to meet and put down audacity and an overbearing spirit in others, allows waste of the nervous system, renders it

weak and tremulous, exhausts it of its phosphorus and nervous fluid, makes the breathing short and faint instead of diaphragmatic and abdominal, and deprives the heart of the power to react, except febrilely, in consequence of congestion and inflammation of the nervous and circulating systems. Of course, then, the want of the elements of courage last described is connected with a weakness and deficiency of back-bone and nerve, and it is natural to suppose that morbid causes which produce almost precisely the same mental and physical effects as extreme fear, must increase these conditions, and that these conditions must favor the action of those causes. Theory aside, it is a well-known fact that a certain kind of bravery fortifies against all endemic, epidemic and contagious diseases, and that fear exposes a person to take them; and it is capable of being equally well known that all long-spined, strong-nerved men and animals find life and health in the atmosphere and surroundings wherein those of an opposite conformation find disease and death. Nature, for this reason, has made all timid and inoffensive beings natives of the higher latitudes and altitudes, where the air is pure and free, and has inspired them with the love of liberty, and in the *defense* of it, the courage inherent in all lofty aspirations, fearlessly poising itself on the giddy heights, because possessing naught of the element which would cast itself headlong upon its enemies, and upon its own destruction. And because the savage and repulsive are exempt from pestilent diseases, Nature has made them natives of the lower latitudes and altitudes, where the atmosphere is charged with exhalations noxious and deadly to men and animals of an opposite description, but nutritious and wholesome, or at least innoxious to them. To live safely on the Gulf-coast, or in like situations in Africa and elsewhere, a man must incorporate into himself something of all the animals that inhabit there. The negro does this in an extraordinary degree. He has a strong diaphragm, a large liver, a long spine, and a brain and skull resistant to great weights and to all causes of oppression and suffering, besides a skin remarkably capable of throwing off morbid matters from the system. And as the negroes have inherited a fitness to resist the malaria and coast-fever of their ancestral clime, and have proved themselves loyal citizens and good soldiers, can the government do better than employ them to help possess and defend its rights in the Southern States against the treason and rebellion of their former masters?

Having shown what conditions of body are favorable to an attack of yellow fever, and other low febrile diseases, and what are favorable to resisting and overcoming them, we will now show, under

CHAPTER II.

What Organs are especially attacked by Marsh Miasma and Pesticent Vapors, as indicated by the Symptoms of the Diseases which those Causes produce.

THESE organs are those which have already been referred to as conditions pertaining to the body as a whole, and to morbid causes affecting the entire system. They are now to be considered as the objects of direct attack, and, when conquered, as the seats of disease, instead of as the sources of health, to the other parts of the body. One of the most observable symptoms of yellow fever, and of the other low forms of fever, which are all modifications and grades of one disease, is epigastric inaction, owing to inaction of the diaphragm and abdominal muscles. In this immobility is included that of the stomach, liver, bowels, kidneys, lungs, and heart, and all the organs lying above and below the diaphragm, which are pressed upon and moved up and down by the action of this organ, and are still and torpid when its action is nearly suspended. The inaction of the liver and suspension of its function from this cause, is shown in the yellowness of the skin in yellow fever, the same as in jaundice, and in the non-appearance of bile in the stools in other diseases of the same family, and in the induration and morbid enlargement of the liver in fever and ague. The immobility of the stomach from this cause being an approach to the death of that organ, the villous coat becomes disorganized, and this, instead of black bile, of which there is none, is thrown off in that stage or modification of yellow fever called "the black vomit," which consists in the ejection of a substance resembling coffee-grounds. All these symptoms show that the diaphragm primarily, and secondarily the liver, stomach, and other organs which are dependent to a great degree on the diaphragm for their action, are attacked and weakened by the atmospheric poisons which produce fevers. These organs are the guards of the system against febrile diseases, and the general health can only be reached through them, by either morbid causes or sanitary remedies. Between these organs and atmospheric poisons there is a natural antagonism, and

when the organs are the stronger, the poisons are routed, and the health is preserved, and when the poisons are the stronger, the organs are mastered, and health gives place to disease.

Besides the diaphragm and the viscera in contact with it, the brain and spinal cord are especially affected in all low forms of fever, by the action of the causes which produce these diseases. It is the nervous system that characterizes animate beings, and it is the vigor of this system that gives them strength and activity. Therefore it is injury to the organization and function of the nervous system that is the immediate cause of the prostration of the body, and of the depression of all the functions of animate life, observable in yellow and typhus fevers, and in the last stage of all inflammatory and febrile diseases. That the prime seat of the disease is in the nervous system, which is congested and inflamed throughout, is seen in the delirium, muttering, deceptive sensations, nervous weaknesses, disordered animal functions, fluttering pulse, and the putrescent tendency of the blood and of all the organs and secretions of the body. Hence the name of "nervous fever," applied very often to fevers of the typhus and typhoid type.

In fact, whatever atmosphere peculiarly affects the respiratory organs, must needs so affect the brain and nerves, and they suffer or enjoy together. For through the inspiration of pure air, and the balmy odors and imponderables it contains, the sensorium and motor nervous system are enlivened and inspired; and through the inhalation of impure air, in which are stench and malign influences, the nervous system is prostrated, and made the source of disorder and death to the body, which it was intended to animate and control.

Having shown that the respiratory and nervous systems are first the local seat of the diseases which afterwards become general, and that they are the media through which health can be preserved and restored, as they are the media through which disease and death may enter, we now inquire, under

CHAPTER III.

By what Means these Mediatorial Organs can be fortified against the Influence of Malaria, or restored to their Healthful and Normal Condition when overcome and diseased by this Protean Cause?

THE knowledge that the diaphragm, liver, brain and spinal cord, if superior to febrile causes are able to master them, is a

great deal gained. The question now comes, How is the strength of these organs to be maintained? how is it to be increased if insufficient? and how is it to be restored and enabled to overcome the febrile causes if these have already gained the mastery? These questions are all one question, for the answer is one. Whatever nourishes and strengthens the structure and function of a strong organ, nourishes and strengthens those of a weak one, and the food and beverage of the one state is the diet and medicine of the other. Prevention and cure are directed against the same morbid causes; and the same physiological laws in both cases, though more disturbed in the case requiring cure, than in that requiring prevention, require the same *principles* of treatment. This is the reason why many of the more intelligent physicians "trust to nature" in sickness as they do in health, while many of the less intelligent treat a patient as if he was subject to an arbitrary set of laws of their own making. Trusting to nature, we would make the means of the attainment of high health the means also of the prevention of disease, and the means of prevention the means also of cure, only more concentrated and potent, more free from the grosser substances which make a demand upon the strength of the system.

Practically, therefore, our one question resolves itself into three heads:

First. *How is the strength of the diaphragm, liver, brain, and spinal cord to be maintained, supposing it to be already sufficient to resist the causes of yellow fever and its kindred diseases?* We answer, By the avoidance of some things, and the use of others. There are some articles of diet which act against the diaphragm, others which act against the nervous system, and others again which act against both. Exposed to the influences of unavoidable miasmas, a man should avoid fruits, and all kinds of vegetables except grains, because they are deficient in nutrition and healthful stimulus to the organs which oppose those influences. Vegetable acids, especially, act against the diaphragm, check the secretion of bile, and increase the sensibility of the sensitive at the expense of the motor nervous system, rendering that painfully acute, and this weak and trembling, and incapable of resisting disease. But animal food, particularly that which was endowed with great vitality, which moved by the motion of the spine, and which had a large liver, and a strong diaphragm, should be used, because it acts *directly* upon the corresponding

organs in the human body, increasing their functions and supplying them with the materials of their organization. Rare beef, the red juice of which follows the knife, excites the diaphragm to act upon it, and the liver to pour out its bile, in like manner as raw flesh does in the stomach of one of the carnivora. To supply the brain with phosphorus and with the other elements which attract to themselves and convey the necessary nervous fluid, fish should be added, the most lithe and vitalizing of animal substances. The United States soldiers who have been, and will again be exposed to the fatal fevers of the Southern States, should be permanently supplied with salt fish, (as they are now with bacon,) and with fresh beef and fresh fish as often as possible, at the same time that they are prohibited fruits and vegetables, except the most nitrogenous ones, and those only as a condiment to their animal diet. As to the beverage, the degree of diaphragmatic and bilious action which water and milk may be able to maintain in a northern climate, Scotch ale and porter may be necessary to maintain in a yellow fever locality. Coffee is objectionable, because it rather obstructs the liver than otherwise, and in stimulating the nervous system transiently as it does, and not permanently, it tends to exhaust and weaken it.

Second. *How is the strength of the diaphragm, liver, brain, and spinal cord to be increased, when it is below the necessary standard?* This is by a more thorough enforcement of the animal diet, particularly of the fish portion of it, and by stronger "bitters," even to the use of those which are technically so-called. It is well known that the people of New-Orleans and other Southern ports are great brandy-drinkers, and we have no doubt that this fact has come partly from an instinctive demand, so far as the diaphragm is concerned, and partly from an experience of what maintains epigastric action against the depressing influence of miasma. We know by experience that brandy does this. But the use of any kind of ardent spirits in this respect is more than counterbalanced by its injury to the nervous system. Alcoholic drinks by stimulating the brain and nerves, exhaust them, render them weak and trembling, cowardize and frenzy the mind, expose the system to be overcome by the poison of miasma, and aggravate the consequent disease, making it of that low and fatal type in which the nervous and putrid character is most observable. Diffusible stimulants are admissible only where the respiratory organization is

weak and the nervous strong, and then only for a temporary effect, counteracted at the same time by what is appropriate to the nourishment and permanent support of the nervous system. But tonics are not liable to this objection. The bitter of hops, in beer, may be necessary to maintain, and that of cinchona or quassia, in spirits, may be necessary to exalt, the strength of the diaphragm, when the influence of febrile causes is greater than the power of the diaphragm otherwise to resist them; at the same time that a nitrogenous and phosphorescent diet, suitable to the nourishment of the muscular and nervous systems, should be made use of.

Third. *How is the strength of the diaphragm, liver, brain, and spinal cord to be restored and made sufficient to overcome and throw off yellow fever, or any other low form of fever, when the disease has already gained the mastery?* If it be possible to concentrate the food and drink prescribed for *prevention*, so as to have the essence without the residuum, or any thing to tax the digestive organs, we shall have what is necessary to *cure*. We know by experience that a tea made of an ox's diaphragm is just the diet for a person low with typhus fever or troubled with inaction of the diaphragm from constitutional weakness of that organ. The difference between the essential nature of the diaphragm and that of any other piece of beef may be inappreciable to common observation, but the practical difference, in the effects upon the respiratory and digestive organs, is very remarkable. From this extract all fat should be removed before it is administered. For the phosphorescent food, which the nervous system requires, very delicate oyster-soup, without butter and with no other seasoning than salt, should be given. Or a little of the brain of an animal, the finest and most digestible of organic substances, may be fed to the patient with a view to the same object. Besides this, in default of a sufficiency of the nervous fluid, the application of the galvanic battery to the epigastrium, and passing a current of electricity along the spine, gives action to the diaphragm and motor nervous system, and aids them in overcoming and throwing off the disease.

The proper medicines are extracts, if I may so say, of the beverages appropriate to prevention. How true this is of quinine, sometimes called "the essential salt of cinchona," is abundantly testified by the universal experience with it in intermittents, and all low forms of fever produced by marsh mias-

mata. There is another medicine which acts still more specifically upon the diaphragm and more upon the nervous, though less upon the circulating, system, and that is the extract of the bark of the root of the sensitive plant, which grows almost all over the South. Our common mode of using this bark, (and we are the first, so far as we know, who have used it at all,) is to make a decoction of it and administer it according to the necessity of stimulating the diaphragm to activity. Whatever moves the diaphragm gives motion to the liver and urges it to the performance of its function; but as the liver is very much obstructed in all low forms of fever, especially yellow fever, it should be purged by a good dose of calomel, so large as to produce no salivation or constitutional effect. Tonic bitters of all kinds are like bile, which is derived from the liver and reacts upon it, stimulating it to the secretion of more of the same sort. They are a kind of artificial gall, and both these and the natural kind in the stomach, however they may be brought there, stimulate the liver, not only directly but indirectly, through the diaphragm, to the performance of its function. The gall of an ox, in the absence of bile of one's own, will act more effectually, sometimes, than any other bitter. In proportion as strong action of the diaphragm is demanded by the nature of the individual, there is a demand for that which stimulates it, and the bitterness of gall ceases to be unpalatable. For example, the dog, when a fresh, full gall-bladder is thrown to him, swallows it as if it were a palatable and appetizing morsel. Tonic bitters are least demanded, so far as taste and habit are concerned, by those who need them the most. Whatever food, drink, or medicine a very destructive and vital animal makes use of to support its peculiar character and organization, will act upon, stimulate, invigorate, and nourish the organs that overcome and throw off atmospheric poisons and their effects upon the system. But of course the treatment is parallel only so far as the conditions are so, or so far as a man resembles an animal, and what we state must be regarded as a general rule, from which the particulars may be deduced according to observation and experience.

There is an astringent, as well as a stimulating property, in all tonic bitters, and it is this which distinguishes them from bitter substances that are merely stimulating and narcotic. It is by virtue of this, that while they act beneficially upon the diaphragm, they are not contra-indicated by their effects upon

the nervous system. In fact, a predominance of the astringent principle in bitters, and even the strongest possible bitter astringents, as nut-galls, or astringents in which very little bitterness is perceptible, as that of the fruit or bark of the persimmon, are indicated in all endemic and epidemic diseases, in which the symptoms are those of the last stage of nervous prostration, or the last stage of ordinary inflammatory and febrile diseases. These are excess of decomposition and excretion over absorption and deposition, evidenced by cold sweat, watery discharges, putrefaction, and bloody flux, in which the patient bleeds to death in a short time. In the Southern States, this last is a state which typhus fever frequently runs into, or which seems to be the disease itself, produced by the same cause that produces typhus fever; and simultaneous with the prevalence of this latter disease, cholera is also produced by filth and the poison arising from the decay of vegetable and animal matters, and shows the same epigastric inaction and nervous prostration, and is prevented and cured by the same general means. In all these cases, bitter astringents are necessary, both for the diaphragm and the nervous system, and for the constriction and healthy action which are effected through these upon the other organs.

But there are remedies appropriate to the nervous system exclusively, or which act *specifically* upon that alone. There is a diet fitted to nourish and strengthen the brain, as well as one fitted to nourish and strengthen the diaphragm; so, also, there is a medicine fitted to restore health and strength to the cerebral, as well as one fitted to restore health and strength to the respiratory organs. The use of the hypophosphites is not so much in consumptive as in febrile diseases, in their application to the nervous affection, and its effects upon the other parts of the body. The hypophosphites of iron, of soda, and of lime, we can recommend in such cases from our own experience. The hypophosphite of quinine and manganese would seem to combine the very elements indicated by the two-fold morbid affection in all diseases produced by miasmatic and effete exhalations, namely, the biliary nervous. Homeopathic "phosphorus" we have used in typhus fever, in not very homeopathic doses, with excellent effect.

Of course, if water is good to quench fire, it is beneficial in fevers, both internally and externally. But, for the reasons already stated, acid drinks, though refrigerant, are contra-indi-

cated. Of course too, the diseases produced by the exhalations from decaying vegetable and animal matters, require for their prevention and cure cleanliness of persons and surroundings. But as marsh miasma can not be got rid of in marshy regions, and as effete exhalations are not entirely separable from cities, camps, and hospitals, or wherever there are large concourses of human beings, the bodily, dietetic, and remedial conditions we have described are of vital importance.

A brief *resumé* of the important points to be considered, and our task is ended. First. The army of occupation on the South-Atlantic and Gulf-coast, should be composed of men fitted to withstand the diseases of such a climate and locality. They should breathe deeply, by the diaphragm more than by the intercostals; they should have a large and active liver, and an abundant flow of bile; they should have a long and strong spine, and a brain more resistant than sensitive. Second. The organs required to be large and strong, as resisting and overcoming miasma and mephitic vapors and their diseases, are those that are attacked and overcome by them: consequently they require to be specially aided in their preventive and curative work. Third. The strength of these organs is to be sustained, and is to be brought up to the necessary standard, by diet and beverages suitable to nourish and stimulate them; and when subdued by the febrile and depressing causes we have described, it is to be restored by the same means more concentrated and refined. Under this third general division of the subject, the means of ordinary health, of prevention, and of cure, for the diaphragm, liver, motor and sensitive nervous systems, and through them for the whole body, are considered under three separate heads.

Much might be stated that is common with the ordinary treatment, but having mentioned all that is new, and that we deem essential, we have said all that we intended at the outset; all that we have to offer, in this way, for the benefit of our country; which may it please Heaven to bring safely through the present crisis of her disease, cleansed of her hereditary taint.